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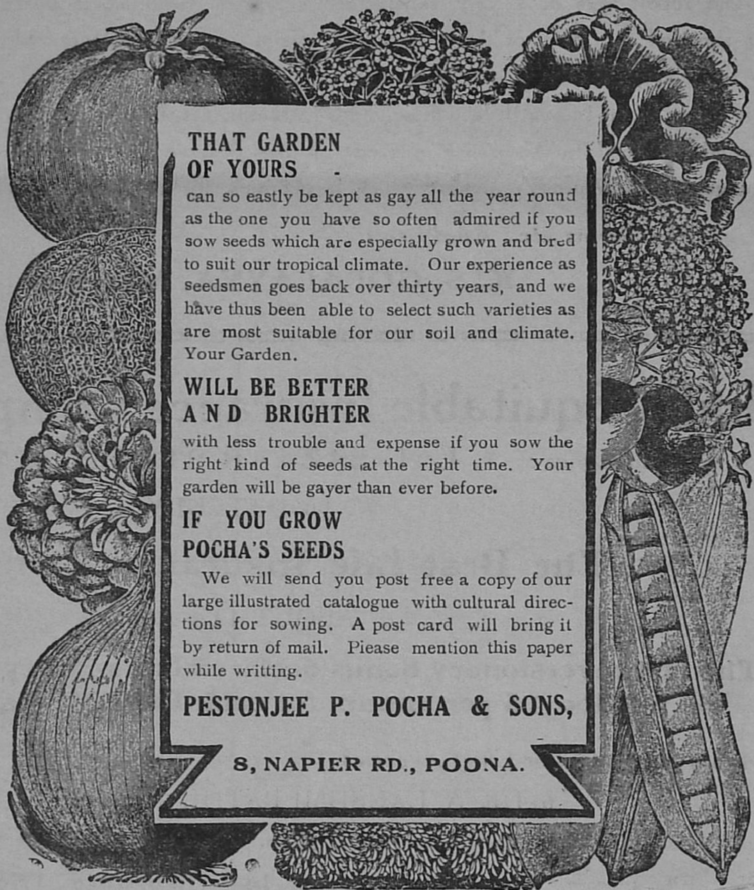

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"COMMERCE & INDUSTRIES"

FORTNIGHTLY REVIEW

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MODERN COSTING.

In days of old the method of costing was probably not very intricate, since the cost of wages and materials was practically stable and any method, good or bad, was sufficiently satisfactory to enable one to find out quite a rough cost at least. At present however, when there is a sign of marked development of human enterprise considerable changes are being introduced in all modern manufacturing methods, a most modern method of costing has to be adopted for ascertaining accurate costs of goods manufactured if they could be successfully pushed into the most competitive markets.

Costing means the real cost of articles produced and services rendered. Every manufacturer, trader or businessman expects to get a profit. He is constantly called upon to quote for his articles. Since the market settles the effective demand he must decide the actual cost and the *gross profit*. Periodically however the actual *net profits* can be worked out and is roughly a margin between total receipts and total expenses. The exact situation can then be found out by charging to the Gross Profits, Bad debts, selling expenses, depreciation of stock and machinery, slackness due to trade, etc., which are items of importance but uncertain. It is now easy to quote for the articles by a close study of the fluctuations in the value of materials and labour and other incidental expenses. All this can be performed when a good costing system exists. Whether a concern produces a single article or a variety of goods there should be a constant effort to introduce economy and improvements, to minimise cost as much as possible and to watch what stores yield most, what machines produce most, what articles are wasted, where there are leakages, and whether all departments and machines are working profitably and finally what articles sell most. Every profitable concern is not expected to produce articles yielding a uniform rate of profit. Some losses are generally counterbalanced by gains. When the normal profits of the business as a whole falls short, some or more of the departments working at a loss may be closed, till the minimum profits are safeguarded. A good costing can detect such defects of the factory.

The costing system should be simple and elastic to be adaptable for any change in the factory and the kinds of articles produced. It should give us the cost of wages and services rendered. It should be obtained by minimum writing collected from what the workers give and what is obtained from the allocations of the chief auditors for selling expenses and overhead charges.

Besides these it should give information on where leakages occur, when economies could be shown and how comparisons of results could be done to find out whether hours paid for tally with hours charged to works and total costs agree with total expenses appearing in periodical Profit and Loss accounts.

Costing system is chiefly based on the Private Ledger and the Books of accounts, still it should be kept separate and confidential. Equal care must be bestowed on this as on the Cash book. Costing system must show figures that could be easily traced. Care must be taken to check the costs daily and at least weekly to enable the manufacturer to verify his estimates so that he does not exceed the quotation by which he has bound himself by effecting timely reduction, etc.

In finding the exact cost the following items should be clubbed together :—

1. Wages
2. Materials
3. Factory Expenses
4. Overhead Expenses
5. Selling expenses
6. Office expenses.

The Cost may be determined for

1. Single or output cost, e.g., ton of coal.
2. Unit cost, e.g., ton mile or space mile.
3. Terminal cost, e.g., building.
4. Process cost, e.g., chemicals where the process is continious.
5. Hour cost, e.g., the number of hours a machine works in producing a variety of goods.

To satisfactorily undertake the working of the modern costing system, materials or stores section and an office section for the proper allocations of general and overhead expenses should be organised by an accountant preferably but kept distinctly separate.

The materials or stores section.—This section must properly record the purchases and issues of stock which should be just enough for the needs of the factory. It is not advisable to lock up abnormally large accounts in the maintenance of a large supply of stock than necessary. It is equally important to keep in stock various articles enough to meet even the most urgent demands. To effect this properly at the commencement of each period, be it 12 or 6 months, a maximum and minimum stock sheet should be prepared from three previous year's consumption statements. Stocks should be accordingly replenished. Here much tact has to be used in studying the markets and advantage taken as quickly as financial help is forthcoming. Any abnormal requirement of stock anticipated by the manufacturing sections should be quickly intimated to the stores section. Any such large purchases of stocks ear-marked for big order may be charged to such jobs entirely even including handling and other expenses.

Orders for articles should be sent in printed order forms in duplicates and consecutively numbered. Regular stock ledgers, properly classified into groups should be maintained to show receipts and issues of stock marked at chargable costs. The use of the Loose Leaf Ledger system will be very valuable in this work. This is sometimes substituted by the Tally Board system with which the balance stocks can be ascertained very easily.

The simplest method in doing this effectively is as follows :—It is a difficult task to determine the cost at which articles are issued against authenticated indents from the requisitioning officer in charge of sections who is responsible for indenting goods. This is more so in the case of articles whose prices fluctuate very much. The best and simplest method is to calculate the average cost, at which materials have to be charged, together with a percentage to cover expenses of handling, wastage, pilfering, etc.

The office section should test the actual percentage of wastage and pilferage by balancing total issues with purchases and with total issues used. Commodities received in bulk and distributed in parts will be subjected to shrinkage and usually 5 per cent will be allowed for same.

Issues of stock should be accompanied by cost slips in different colours to different sections which should contain the indent numbers, the job to which are indented and the average chargeable cost. This helps the costing and estimating section a great deal in determining the primary cost. In dealing with the cost incurred in maintaining the stores department we should take into account, rent, lighting, repairs and other expenses to maintain expenses required towards building and furniture, interest on nominal amount of stock held together with interest on stocks sold on credit as per book debts and wages of staff together with handling and stocking, cart hire and transport charges. All these added up should be reduced to a percentage on the annual value of chargable materials. The total cost is therefore equal to net cost plus handling and overhead expenses plus administration expenses. The profit of stores section is the difference between total cost and the value at which this manufacturing departments are charged.

Annual or periodical stock-taking should be conducted by an officer not connected with the organisation of the stores section. The results may be useful for comparison and determining the wastages, etc.

Recording of Labour :—In recording labour we should not only have a carefully considered system but also see that it is properly enforced. The system should give the cost and also indicate the way of arriving at it.

When work orders are registered in the office, an Order card containing instructions of distribution of work to be done in the several departments will be passed through each of the departments named therein in the same order. When big orders have to be costed for instructions sub-orders may be sent separately and individual costs noted separately.

In the department the works are entrusted to several sets of workmen who have to enter their *Daily Dockets* which should contain the time charged and hence the hours to be actually paid for, the details of work or works over which he is employed and the rates at which his labour is chargeable.

When a workman is employed for more than one work the hours engaged in each Job should be noted and also the hours if any for which he had no work since he has to be paid for even for the unemployed time. This serves one good purpose. viz., it detects at the end of the week any leakage in labour in case the supervising staff has not taken notice of this.

The dockets are filed up for a week and handed over to the time clerk.

The work of the Costing Section :—The wages sheet is prepared every week by collecting all the Daily Dockets which may be filed in a loose leaf ledger, the numbers of workmen serving as index, till the work order concerned is completed. The wages sheet may be checked for the hours marked with the hours charged and these should be found to tally. Else there is a leakage which can be traced out. From the wages sheet the cost register is entered weekly.

The cost sheet :—This may be prepared in each of the departments and should contain summary of details found on the Daily Dockets, summary of details found in the cost slips issued for materials used Care should be taken to note only the actual quantity of materials used and only chargeable time is noted. This will be entered in the cost register. So far the recording of direct charges can be done automatically by the help of the cost slips and wages sheets or cost sheets.

The Indirect Charges :—The proper apportionment of these is a task to be entrusted to only the responsible officer. Much tact has to be used in this since a general rule cannot be adopted but much depends upon the nature of the business.

The Indirect charges are :—

1. Departmental charges.
2. Adminstration and Distribution charges.

The first is composed of

1 Rent, Rates and Taxes.

2. Depreciation and maintenance of plant, machinery and tools (Patterns and designs if any).

3. Motive power—Lighting and Heating.

4. Superintendence and clerical assistance.

5. Interest on capital invested in Stores, plant, machinery tools, etc.

6. Unproductive wages, e. g., Timekeeper, cleaner, etc.

2. *Administrative expenses.*

1. Salaries of Managers, clerks, and Directors (if any).
2. Rent, etc., of office, show-rooms, etc.
3. Discounts—allowances and bad debts.
4. Travelling and advertisement.
5. Interest.
6. Interest on capital.

The apportionment of the above departmental charges may be done as follows :—

Rent, Rates and Taxes, etc., are apportionable in proportion to the space occupied by each department. When the estimate of rent is not known, the interest on capital invested on buildings may be traced in the same way. Repairs to buildings and other expenses connected therewith, e.g., Fire insurance, may be similarly treated. Fire insurance on plant and stock should be in proportion to the values thereof.

Lighting and motive power should be charged in proportion to the actual consumption.

Repairs to plant and machinery such as oil and waste should be charged to the departments and not to jobs.

Interest on capital should be in proportion to the capitals locked up in the several sections or departments.

The charge of superintendence should be in proportion to time spent and not wages paid.

In recent times the use of mechanical appliances is getting so common that some times machines of considerable value and size are employed that good attention has to be taken of the actual cost of maintaining them. When only a single variety of the articles is produced the entire cost is divided by the total output (the number of articles). When machines of varied capacity, out-turn and age are employed, the total number of hours each may be working during the week should be noted and the total cost in respect of Rent, Power and Lighting, Overseers and Porters' charges and overhead expenses should be reduced to an hourly rate and charged to each machine. Repairs however should be charged to individual machines since newer machines are less subjected to heavy repairs.

The greatest advantage of the costing system is the help that it gives to the Estimating Section. The person who prepares the estimates should not have access to the figures of costing.—An approximate tally with the estimate and the actual cost can be arrived at if the two systems were to be kept independent of each other.

In estimating the basis of calculation must be the same as that employed in arriving at the cost. The unit of production may be either (1) the cost of 1,000 articles to be produced (2) a man power rate, or (3) a machine power rate together with all labour and overhead expenses. In any case the unit followed in costing system should be followed in this as well. The percentages arrived at for purposes of working out cost may be well employed for estimating also.

For purposes of collecting materials with the estimates the stock ledgers may be freely consulted. The estimating so prepared should tally with the cost sheets when there is any difference, it is either that the estimates are wrong or that the work is completed before time or after. When large differences are noticed the mistakes may be traced out by cutting out the items in the costing system and errors may be recorded for future guidance. When after estimating the original orders are altered, additional estimates may be prepared for extras instead of modifying the estimate already prepared. Again, any increase in cost of moterials or wages will have to be taken into account also before completing the final estimate sheets.

Finally, figures from the confidential books will have to be studied before adding the percentage of profit to the actual cost.

FISCAL COMMISSION.

The questions framed by the Indian Fiscal Commission indicating the main aspects of the enquiry appeared in the 16th October 1921 issue of "Commerce and Industries." The following is the Memorandum of answers submitted by Mr Purushotamdas Thakurdas, Chairman of the Indian Merchants' Chamber and Bureau, Bombay:—

Q. 1. We are strongly in favour of a policy of protection for this country.

Q. 2. We are of the opinion that a tariff is a more suitable form of taxation than direct taxation, and that if fresh revenues are needed for the country this indirect form of taxation should be resorted to in preference to direct taxation, which is already very heavy and beyond the taxable capacity of the people and in which reductions are certainly desirable.

Q. 3. We do not accept the principle of imposing a tariff for revenue purposes only.

Q. 4. If the question means that the tariff should be continued purely for revenue purposes we have already answered it in our answer to Question No. 3

Q. 5. The existing tariff policy has had no beneficial effects on the development of industries ; for our contention is that a tariff meant for revenue purposes only will never succeed in giving the industries of the country that protection which they need for development.

Q. 6. We would emphatically say, no.

Q. 8. The price would, no doubt, be raised to the consumer by an excise duty but there would be no compensating advantage. The effect of such duties would be injurious to Indian industries.

Q. 9. Yes ; we are strongly of opinion that the tariff should be framed primarily with the object of protecting and developing Indian industries. For the advantages anticipated from such a tariff we can only refer you to the present economic position of all the manufacturing countries of the world. Germany, America, Belgium, France and Japan have all developed within the shelter of high protective duties ; and England herself established her position as an industrial nation behind the protection of tariff walls, bounties, Navigation laws, etc.

Q. 10.—We look forward to this country becoming in time independent of other countries in regard to all her essential requirements. The measure of that time will depend on the amount of protection obtained by the country. With the existence of her abundant resources in men and materials we have no doubt that this country could be in a position to manufacture her essential requirements.

Q. 11.—We would favour the imposition of minimum protective duties on all imported manufactures. The amount of further protection may, however, vary with the peculiar and special circumstances of each particuiar industry.

Q. 13 —If sufficient protection is granted to the industries of this country against foreign manufacturers, Indian industries will naturally select themselves and industrial development in various fields will spontaneously follow.

Q. 14.—We do not think that the question can be categorically answered because the duration of protective assistance to Indian Industries would, apart from internal progress and establishment, and the degree of efficiency of our labour, both skilled and unskilled, depend also on conditions in the rest of the manufacturing world, which may vary. For instance, if bounties and subsidies are given to an industry by a foreign Government, the protection to the Indian industry would have to be continued. Generally speaking we may say that even if a protected Indian industry is well established in the country in the future, it would continue to receive protection as long as there does not take place a general disarmament in the tariff world.

Q. 15.—Yes ; we would. With regard to means for ascertaining the exact facts of favours of the kind referred to, conferred by foreign Governments on particular industries, these would generally be obtainable from the Indian interests concerned. Consular Agents and Trade Commissioners would further help in this direction. The nesessary protection against these can be secured either by countervailing duties

or by any other measures that the organisation referred to in our answer to Ques. No. 29 may think fit to adopt to meet the situation, when it arises.

Q. 16.—Hand industries based on such economic factors as idle time, fancy designs, which can only be done by hand, and consequently on uneconomic prices, would naturally take care of themselves. But we would have no objection to hand industries being encouraged on sound business lines having due regard to the possibilities of their being ousted by power industries.

Q. 17. We are afraid it is too early in India to be apprehensive of the dangers referred to. In any case, if and when they do arise, the Legislature would be competent enough to deal with them. There are Trade combinations in other countries; but these countries have not yet been known to have given up their protectionist policy on that account.

Q. 18. It is not improbable that foreign industrial firms will endeavour to establish themselves in India behind the shelter of tariffs. But we would suggest some safeguards to prevent unfair exploitation of the resources of the country by such firms. We should insist on all concerns developing industries in India to be formed with Rupee capital; half the capital of each should be offered to and held by Indians. Similarly, no concessions at all should be given to any non-Indian Company unless at least sixty per cent. of its capital is offered to and held by Indians. Foreign or Colonial firms should be allowed to start industrial concerns in India only if the foreign country or Colony from which they come treats Indians on equal terms with its own people at home.

It is possible that non-Indian firms, established in India to take advantage of the protective tariff, may try to make common cause with their interests abroad, and in their strength, use unfair means to strangle newly born Indian competitors. To prevent such an abuse by them, of the privilege of being established in India the permanent organisation (ref. Question 29) should keep continuous watch and report every such case to the Government for strong, prompt and effective remedial measures. In the interests of India it may be necessary for the Government to compel such non-Indian concerns to wind up their business in India.

Q. 19. As a general rule we do not see how such a conflict of interests could be avoided. But the Legislature can guard the best and ultimate interests of the country as a whole, as other nations have been doing within their own borders. In a conflict of interests, the balance of advantages to the country as a whole should be the determining factor in any solution that is applied.

Q. 20. In normal conditions, and in certain cases, some part of the duty will inevitably fall on the consumer. But whatever be the incidence of the duty, whoever ultimately pays it, or a part of it, the interests of the country as a whole are served by the establishment or encouragement of an industry as a result of the duty. We would also point out that it is of no practical consequence to isolate consumers into a special class by themselves. No man is a consumer alone, nor is any man only a producer; and if it is granted that the consuming and producing classes are for all practical purposes one and the same, spread over the country as a whole, the incidence of the duty, *again* to the country as a whole, does not matter.

Q. 21.—Any rise in prices due to a protective tariff would be mitigated by the tendency of internal and external competition to lower them. The balance of natural advantages that an Indian industry may posses in the nature of the availability and proximity of raw materials, markets, labour etc., may even further tend to lower prices as against those at which the foreign competitors could sell in India.

Q. 22.—Please refer to our answer to Question 20.

Q. 23.—The only two fundamental necessaries of life are food and water. All other human requirements are more or less relative in their necessity; and the case of each individual article would have to be dealt with on its own merits. For instance, till the sugar industry is thoroughly established in this country, there is no reason to be afraid of the tariff taxing the consumers in an increased price. For, we would repeat again, the very establishment of the industries by a tariff would be for the greatest good of the greatest number in India, and would be in consonance with the interests of the country *as a whole*.

Q. 24.—As far as the tariff is concerned it would certainly tend to increase the cost of living. But its effects would only be more or less temporary, and with the general increase in Indian production these would gradually diminish. The cost of living, however, would be, and is even now, affected by influences other than tariffs such as the growing standard of living the volume of currency, and the inevitable sequence of higher wages.

It is very difficult to state the exact extent of the cover that would be afforded to the three wage-earning classes by a rise in their income. The industrial wage-earner will certainly have an increased income with increased production and increased demand for his services. The agricultural wage-earner will produce more raw materials for Indian industries and will earn more. Apart from that in India, the industrial wage-earners and the agricultural wage-earners are not distinct and separate classes by themselves; and when Indian industries spread their beneficent effects all over the country, as it is hoped some day they will do, both these classes, even if you treat them as separate classes, will have an increased income. The middle classes, viz., the large body of traders who are intermediaries between production and consumption, will also secure increased income from the increased volume of general and internal trade. So that we think that all the three classes will gradually be in receipt of an increased income which will compensate them for the increased cost of living, in so far as such increased cost of living is brought about by an increase in tariff rates.

Q. 25.—The experience of every industrial country that has grown by protection proves that industrial development is favourable to its foreign trade and to the general commercial position and prospects of the country. There is no reason why India should prove an exception. It need not be assumed that the development of Indian industries will mean the killing of its foreign trade. A prosperous India will have a larger purchasing power, and a more productive India will have a larger selling capacity, even outside its borders than at present.

Q. 26.—A tariff would certainly have the advantage referred in this question; and if ever a circumstance arose, there is no reason why it should not be used for the purpose mentioned.

Q. 27.—For purposes of bargaining, concessions might be made to a foreign country according to the degree of favourable treatment granted by it to India. But here again the balance of ultimate advantages to this country in the development of its industrial potentialities would have to be continuously kept in mind.

Q. 28.—The tariff would have to be more detailed, and its actual framing would have to be done by an expert body.

Q. 29.—In view of our reply to Ques. 11, we do not think that any necessity would arise for investigating the claims of various industries to protection from time to time; but we think it will be necessary to have a permanent organisation representing the commercial and industrial interests of the country which could deal with the extent of protection to be afforded to particular industries.

Q. 30.—There should be no export duty levied for protective purposes on any raw material. But if it is absolutely necessary to levy such duties for *revenue* purposes, they should be levied on such articles only in which the country has a practical monopoly.

Q. 33.—In the case of food stuffs, we think that the imposition of an export duty will not have the desired effect in allaying famine conditions, for the demand for our food stuffs in other countries may be sufficiently strong to draw away, in spite of the duty, part of our supplies when most needed by us. We think, therefore, that under conditions of famine and scarcity, the best course would be to control exports.

Section B.—(*Imperial Preference.*)

Generally we would say on this subject that we are strongly opposed to any policy of Imperial Preference; for we consider that this country ought to have the right of safeguarding its industrial interest first, second and last. The commercial situation has been in the past, and is to-day, that this country imports in normal times two-thirds of its total imports from within the British Empire; while two-thirds of its exports are to countries outside the British Empire. In other words, the United Kingdom takes from India less than one-half of the value of goods which she exports to India. A policy of Imperial Preference, therefore, would have the disastrous effect of keeping our tariff door still open to the British Empire as far as our necessities of manufactured articles go. That is to say, by such a system we should be forced to buy our requirements from the British markets, and would not, therefore, have the benefits of making our purchases in the larger world markets. And since it ought to be the declared policy of this country to develop its industrial potentialities by means of a tariff wall as against all-comers, a policy of Imperial Preference would have the inevitable effect of hampering us in that direction. As it is, the British Empire enjoys, and has enjoyed for years past, a unique position in the Indian market; and any attempt on our part to give them *increased preference* will only have the unfortunate result of perpetuating India as a market for their goods. Apart from these considerations, India would on balance lose more than she would gain by granting preferential rates on Imperial goods at the expense of the foreigner. And there would also be the risk of retaliation by foreign countries which would weigh heavily on our export trade, and therefore on the Indian producer.

Furthermore, under a system of Imperial Preference any attempt to keep a cheaper foreign article out of India by a higher duty would merely result in its being imported through the United Kingdom and under British guise. Attempts will also be made by the United Kingdom to obtain a larger percentage of our exports, at the expense of the natural course of our export trade. In his latest despatch to the Board of Trade, His Majesty's Senior Trade Commissioner in India and Ceylon has urged that "Every effort should be made to stimulate imports of Indian produce and manufactures to the United Kingdom and to retain our valuble entrepet trade which has—in the past—been of incalculable benefit in stimulating British exports." To the Indian consumer or producer this unnatural course of trade would have no advantage, present or future. And we would urge that if this country is to consider her own interests first and foremost, a policy of protection, nullified by a system of Imperial Preference, will mean both a loss of revenue to the State and a defeat of the very objects of safeguarding Indian industries present and possible. This country cannot afford any more to risk its economic fortunes for the sake of ensuring a market for British goods, much less for the sake of a political experiment.

GENERAL.

We venture to submit to the Commission the vital issue at stake in determining the future fiscal policy of this country. The cry for protection in this country is not of recent growth. The necessity of protection has been felt ever since Indian economic interests began to realise the position in which they had been driven for many, many years past. In fact, it is our opinion that had a policy of protection been adopted even twenty-five years ago, the country would have been able to show already very substantial results in the development of its industrial resources. We may also add that had such a policy been pursued, an industrial India would have been of greater assistance during the war than she was. The war also demonstrated the helpless position of the country so far as our requirements went, and we would urge that no steps be neglected to prevent a recurrence of such an unfortunate episode in its future history. We have, to-day, arrived at a stage in our industrial development when we feel that though the hesitating steps private enterprise has taken to develop industries have produced some,—we hope permanent results, in spite of the want of tariffs, the pace must be accelerated if we are not to be left permanently behind. The industrial world has turned on a new course as a result of the war. Most of the belligerents were manufacturing countries far ahead of India in their productiveness. Almost all the belligerents have lost most of their capital in a war of dimensions staggering in its economic consequences. Millions and millions of pounds have been heaped on the shoulders of the Western world as war debts to be redeemed by future generations (and India has shouldered her war burden too). But that very load is going to stiffen their backs to obtain new wealth from out of the channels old and new. A determined effort will be made by them to retain old markets and capture new ones; for no other course is possible for them, either to balance their budgets or to pay off their debts, but by producing more, selling more and thereby obtaining more wealth. The industrial struggle will consequently assume a more gigantic scale than it has hitherto done; and those countries which tarry in their industrial progress will inevitably go to the wall. The question of protection, therefore, has assumed for us a deeper purport than ever. It has become a question of self-defence against the economic aggression of the manufacturing world; and if this country is not to fall further behind in the industrial race, and lose it altogether, every means that is available, individually to its inhabitants and collectively to its Government, must be availed of to enable it to stand up against the keener and more vehement struggle for markets that is coming. The fiscal policy of this country has hitherto been dictated by vested interests in the United Kingdom, be it said to the discredit of British rule in India. Free trade has been imposed on her against her will, and to the ruin of her industries. The right to develop her material resources in her own interests has been denied to her. And she has been reduced into the helpless position of a farm for raw material and a market for the manufacturing world. Much of the unrest and dissatisfaction is due to this position of economic subservience into which she has been driven. And we venture to submit that as long as this universal and elementary right of every country, large or small,—which even Great Britain's other Dominions enjoy—is withheld from her, there will be no real peace or contentment. For economic subjugation is more insidious and disastrous in its effects than political subjugation; and economic death means every other death.

SNAKE-BITE

Its Prevention and Cure.

On an average about twenty thousand lives are lost annually in India from snake-bite. There is no doubt that the mortality could be greatly reduced if people only knew how to guard against snakes and what to do when a man is bitten. By observing the directions given in this leaflet the danger from snakes will be minimised.

Distinguishing Marks of Bites of Poisonous Snakes.

In India there are numerous varieties of snakes, but only thirty-seven of these are poisonous and only seven are commonly met with. Everyone should learn to distinguish the different varieties, for it often happens that a man faints solely from fear even if the snake biting him is non-poisonous.

There is a distinction between the wounds inflicted by poisonous and non-poisonous snakes. If on looking at a wound closely you find marks of two-teeth you should conclude that the snake was poisonous, but if the wound shows cross marks of several teeth, the snake must be non-poisonous.

The wound inflicted by a poisonous snake is charcteristic. Soon after the bite there is intense burning pain, the wound begins to turn red and bleed and the whole part becomes blue and swollen. The man feels as if intoxicated and sleepy. There is a peculiar sensation in the legs and sometimes he begins to vomit. The power of speech and swallowing is lost and respiration is gradually stopped. Persons bitten by certain varieties of snakes at once become senseless, their body becomes cold, there is copious perspiration, the pulse becomes feeble and often there is bleeding through the mouth and bowels.

Precautions against snake-bite.

The following precautions should be taken by those who live in snake-infested quarters :—

Always sleep in bed. If you have to leave your bed at night, light a lamp and before setting your feet below, make sure that there are no snakes on the floor. Never go out at night, especially during the rainy season, without shoes and a light.

Do not let grass and thick bushes grow near your house as they are likely to harbour snakes. If possible, spread gravel round your house to the width of at least one yard for snakes do not like to pass over a rough and rugged surface. Try to have your house free from frogs and rats as they attract snakes.

What to do in case of snake-bite

If unfortunately a man is bitten by a snake, tie a cord, handkerchief or a piece of strong cloth three inches above the wound, and by inserting a piece of stick into the ligature and twisting it make the bandage so tight as to stop the circulation of blood at that place. Then with a lancet make several longitudinal incisions (never make transverse cuts for fear of cutting bloodvessels) and rub the wound with pieces of potassium permanganate (the red disinfectant thrown into wells for purifying water). To be able to benefit by this treatment you should always have a box containing a lancet and a small quantity of potassium permanganate. You can get such a box from any chemist for four annas or six annas. If you have not got potassium permanganate, remove the flesh from the wound and its adjacent parts with a sharp knife and burn the wound with a burning coal, a piece of hot iron or boiling oil.

If no signs of poisoning are visible in half an hour, slacken the ligature a bit; else the part below it will become deadened.

If the body of the patient begins to get cold, then keep his head low and the legs flexed at right angles to the body; both the limbs should be tightly bandaged from below upwards; a mustard plaster should be applied over the heart; dry ginger and mustard should be rubbed over the body till hot water bottles are ready to be applied to the patient's body. At least a dozen hot water bottles are required for the patient and he should be covered with a blanket.

Alcohol should not be given. Smelling salt made by mixing equal quantities of lime and *nosadar* (country Ammonium Chloride) may be inhaled by the patient.

Hot soup, hot milk or hot tea should be given to the patient, preferably two or three teaspoonfuls every quarter of an hour.

Do not obstruct air and do not allow the patient to move; let him have perfect rest. If breathing is found to be stopping, have recourse to artificial respiration as is done in the case of drowned persons.—*(Publicity Bearu)*

GLUE MANUFACTURE

A Government Concern.

The Government of Madras, Development Department, have issued the following order for the working of the Madras Glue Factory at Government expense :—

The Department of Industries has for some time been engaged in experiments in the manufacture of glue. The experiment originated in certain chemical discoveries made by Mr. K. C. Srinivasan until lately Chemical Assistant in the department. Messrs. Beardsell & Co. agreed to undertake the next stage of the experiment. viz., that of actual manufacture on a small commercial scale, management

by private firms at this stage being the method advocated by the Industrial Commission. The firm took charge of the factory in August 1920 and has been actually producing glue of good quality. The firm have now however expressed their inability to continue the experiment and their wish to withdraw from the business altogether. The Government accordingly took charge of the factory on the 31st August 1921.

2. The Director of Industries submits proposals for the future working of the factory.

His proposals are—

(1) to pay Messrs. Beardsell & Co. a sum of Rs. 8,594-10-6 on account of cost of machinery, books, raw materials, and sundries taken over from them;

(2) to pay Rs. 6,270-4-0 to the Public Works Workshops on account of machinery supplied to the factory for which payment has not been made by Messrs. Beardsell & Co.

(3) to incur an expenditure not exceeding Rs. 3,000 on repairs to the factory and on installation of a vertical screw press;

(4) to employ Mr. V S. Chinnsawmi Ayyangar on a salary of Rs. 300 per mensem with effect from 1st October 1921;

(5) to transfer Mr. Wariar, a Government scholarship-holder in the Indian Institute of Science, Bangalore to the factory;

(6) to appoint Mr. K. C. Srinivasan as a consulting chemist and to pay him a conveyance allowance of Rs. 50 per mensem;

(7) to employ four watchmen on a salary of Rs. 17-8-0 each per mensem, two of them being for only three months.

(8) to employ a storekeeper on a salary of Rs. 50 per mensem a fortnight before the factory commences work on a commercial scale; and

(9) to incur an expenditure of Rs.11,060 on raw materials and labour for four months from 1st December 1921, the date on which the manufacture on commercial scale will begin.

3. These proposals are sanctioned with the remark that the Auditor-General has been addressed to permit Mr. K. C. Srinivasan to act as Consulting Chemist and to receive a conveyance allowance of Rs. 50 per mensem; his sanction will be communicated to the Director later. A sum of Rs. 500 asked for by the Director in paragraph 2 of his letter to meet unforeseen charges is also sanctioned.

4. The re-appropriation proposed by the Director to meet the extra expenditure during the current year is also sanctioned.

INDIAN BANKING REFORM.

It has been recognised that Indian Banks should be throughly re-organised and improved so as to afford the much needed fecilities to Indian industries and trade. Indians should not slavishly copy the western methods of banking in India. Indian Banks must be managed by Indians on the lines best adopted to the Indian requirements by the financing of Indian industries, agriculture, internal and external trade thereby affording maximum fecilities to the people of the land for the promotion and protection of Indian interests. Mr. B. Ramachendra Rao, M.A. Lecturer, Calcutta Universiting contributes a useful article to the current issue of the Calcutta Review on "Indian Banking Reform" which is reproduced below for the information of the readers of "Commerce and Industries":—

One need not labour hard to prove that the existing banking system of India needs thorough reform. There is hardly "a banking system" worth its name. A banking system where the several component banks remember their close affinity of relations and extend mutual sympathy and help is absent in this country. India does not possess a close-knit banking organisation as in the case of Germany, Japan, France or the United States of America. This absence of "thirst for system or wholeness or close-knit organisation" which is so characteristic of Germany is chiefly due to the tendency of the Indian banks to do business "each for itself." The Indian Exchange Banks, the Presidency Banks and the Indian Joint-Stock Banks work severally and not collectively. The latter have striven hard to protect their business from competition with the Presidency Banks; which have never helped the Indian Joint-Stock Banks either with wholesome advice or money at their hour of trial.

These Banks copy the tendency of the English Banks which justify their existence solely on the ground of profits. They aim at becoming professional bankers having no connection with industrial finance. It is true that short-term loans are granted to industries but they never sacrifice the principles of safety and liquidity of assets which commercial banks have always to keep in view. But commercial banks alone will not create the needed credit for our agriculture and nascent industries. New banks should arise to satisfy the needs of small men and small industries. Just as the Co-operative Credit movement of our country is borrowed from Germany, the German feature of close relationship between industry, finance and transportation is also worth imitation. Indian economic development cannot be fostered unless there is a close alliance between banks and industries as in the case of Germany or Japan. Either new Industrial Banks having nothing to do with short-dated deposits should arise or the existing Banks should take up industrial financing. The Government of India should prevent by legislation a repetition of the previous disasters.

That the Indian Banks have borrowed, copied and translated the chief features of the English Banks is an undisputed fact. They have copied the tendency of the English Banks in having huge Authorised Capital, a part of which is subscribed and out of which very little is paid-up at the beginning. Like the English Banks, the Indian Banks wish to trade largely on credit. The Government of India have followed the Government of the United Kingdom in their *laissez-faire* policy in the matter of banking business. Imitation for imitation's sake has produced unworthly specimens. The superficial elements alone have been copied while the really vital and progressive features of English Banking have not been engrafted on our system. Banker's Associations, Banker's Institutes and Banker's guilds have not been created on the English model. The Presidency Banks were only in a very remote sense the guardians of the whole system. They were not full-fledged Central Banks acknowledging all their responsibilities. The present Imperial Bank of India itself does not possess the traditional glory, respect and power enjoyed by the Bank of England in the London Money Market. There is a noteworthy absence of control either by the Government or by a Banker's Association.

Again a part of the financial system alone has been imitated. The Indian Banks are merely pursuing commercial business. In England besides Banks, there are trustworthy promoters, capable underwriters and issuing houses so that industrial companies derive invaluable aid from them. It is but natural that the Indian industrialists would look forward to their banks for this kind of business also, owing to the absence of these specialising concerns.

India made an unhappy choice in selecting the English Banking system as her prototype. The progress of Japan has been due to her selecting the salient features of nearly every banking system in the world and engrafting them on her own banking conditions. The specialising tendency visible in the English Banking system is noticeable in Japan. It has imitated the model of the French mortgage Banks, *e. g.*, The Credit Mobilier and Credit Foncier of France. It has copied the useful branch-bank system. It has borrowed the continental system of close relationship between the small banks and the Central Banks. It committed the mistake of imitating the U. S. A. National Banking system and after a short trial it gave it up for the Central Banking system with the Imperial Bank of Japan as the crowning head of the whole fabric. The whole credit system was thoroughly organised by banking experts borrowed from foreign countries. State help and control enabled the banking system to work well.

The Indian Banking system should be thoroughly overhauled and re-organised on an improved basis. The materials already exist. The Imperial Bank of India can be utilised as the keystone of the whole arch and the other banking concerns should know definitely their own duties and the help they can expect from this Central Bank. Credit for the rich and the poor and for the big and small industrialists should be created by the existing banking institutions or fresh ones that may arise in the future. The Government of India should see that there is no abuse of the word "bank" as in the past and by restraining legislation smooth the progress of the banks. An attempt should be made to profit from the experience of the Continental countries by copying all their deserving features. The English banking model is not the best model nor is it suitable to our present needs. Keynes was quite correct when he wrote that England's was the worst currency model that India could imitate. Even in the matter of banking business the Indian people should realise that their salvation lies in selecting the salient features of all banking systems and adopting or adapting as Japan has done.

The existing Indian Banks can be divided into three classes. The Imperial Bank of India, the friend and ally of the Government of India, the foreign banks and the local Indian Banks. The Imperial Bank of India finances the internal trade of India to a great extent by discounting commercial bills. It lends money on raw produce and imported goods. The Foreign Banks develop Indian trade with their own countries and naturally assist their own countrymen. It is only with their surplus money that they give help to Indian Industries carried on, on a large scale. The local banks Slavishly imitate the Presidency Banks and conduct commercial banking business. They lend money on zemindary properties in preference to Indian Industrial securities.

Many of these Banks are managed by foreigners who only come into contact "with a few of the aristocracy" and so ordinary traders and small industrialists do not receive much help from them. So they have to pay high rates of interest for any accommodation they may get from the public and sometimes thriving industries suffer from insufficiency of capital. Industrial financing, thus is not on a sound and proper basis.

It is not the financing of Industries alone that being neglected, but rural trade and credit is not properly designed and the existing banks do not care to change the existing methods of rural credit. It is growing more evident day by day that the present insufficiency and waste involved in our export trade business should be rectified as early as possible. Our export trade is left to the mercy of funds outside the country. As in "capital poor countries" our export trade is being financed by the importing country to a great extent. The big export and import houses are in the hands of Europeans who employ their agents to collect produce from the interior and send it to the port stations whence they are shipped at their own risk and cost. The agents or *goma sthas* necessarily finance the cultivators from the beginning and the crop is hypothecated to them.

This system of financing our internal trade for exportation purposes is not to our best national interests. The chief harmful result of this proces is that the foreign merchant houses are exploiting our agriculture in their own interests. Export of rice and wheat is increasing while their production is not on the increase at all. Cotton and jute cultivation is increasing while food production is not progressing satisfactorily. The production of non-food crops for export purposes is chiefly due to the influence of cash advances of the foreign merchant houses. Thus our economic prosperity is mainly dependent on this firms.

This system of exploiting agriculture in the interests of foreign exporters should be given up. The introduction of co-operative credit societies combined with co-operative sale societies will go a long way in remedying this state of affairs. The question of removing this rapacious middleman requires patient tackling for a long time. This is so far as rural trade and credit are concerned.

The same is the story with our international trade. The Exchange Banks finance the export trade bills with their funds attracted in London. They rediscount the D/A Bills in the London Money Market or with the Bank of England. The import bills are also financed by the Head office of the Exchange Banks. This is indeed a danger.

Every one of these Banks is the offspring of European countries, Japan or America. They have steadily taken up the financing of our external trade with their countries. They are alive to the interests of their own countries. They display no keen desire to take part in the economic reorganisation of our country. They evidently do not harbour any ambitious national programme for India's uplift. These Banks remain distinctively foreign, much the same as they were at the start. They are more willing to help their own countrymen and trade with European business companies and are not anxious to attract the accounts of small and young firms started by the Indian people. It has been repeated several times by competent men that an Indian firm trading under a European designation, is more fortunate in obtaining accommodation from the existing Banks. These are some of the drawbacks of the existing powerful Banks.

It is indeed high time that our banking system should be re-organised on a healthy basis giving scope for the proper mobilisation of our money. The healthy development of our trade, the careful promotion of our industries, a wise economy of our precious metals and a real increase of our national wealth—these are the problems that a soundly organised Banking system has to solve.

THE POWER OF MONEY.

Mr. K. B. Bose writes in the *Mahamandal Magazine* of Jan. 1922 :—

While no one can decry that the inordinate lust of money, and the misuse and abuse of wealth are vast evils, at the same time we must admit that the good and proper use of wealth—the wealth of the individuals, and the wealth of nations, may produce untold blessings for humanity,—may help the cause of right, and assist in paralysing the cause of wrong. These facts are brought out very clearly in recent, past and present history. A few years back America exacted a heavy indemnity from China for huge depredations, and aimless destruction of American property, and the taking of European lives. The great sum was given back generously to China, on the consideration that it should be used only for educational purposes. Immense benediction has followed the use of these appropriations, and many thousands of Chinese will live to bless America's munificience. This is a very exceptional case of money being used for good purposes. This return was made in 1904, and 1916 still benefits. Thirty years before this event, Germany exacted an unreasonably immense indemnity from France, which was deposited in the Fortress of Spandan, and was added and added to, furnishing Germany with the gigantic resources which have enabled her to carry on the present huge Armageddon of frightfulness for two years, the ending of which is as yet unknown. Here are two flood tides one of good, and the other entirely of evil, arising from the proper use and the gross misuse of money. And so it has been through all the past centuries. The power of wealth may rise and elevate, or drag down to the nethermost Hell. Money itself cannot be blamed, but the way in which it is used or abused. When money comes into the hands of good and virtuous men it does good like the dews of heaven. Again a rich man is generally surrounded by a set of flatterers who try their best to have their selfish ends fulfilled; they do not fail to give him unders we compliments for his qualities and merits which he has not at all, but they themselves create in him and he therefore does not at all deserve those high sounding compliments...............

The elephant may be used to stack timber, to move great obstacles, and to advance the cause of civilisation, or it may be used, as in ancient eastern countries, in trampling and crushing the life of thousands of prostrated prisoners of war. The rushing mighty floods that devastate and desolate miles of country, may be guided into prepared lakes, capable of enriching many thousands of square miles of a country at leisure. The floods are not evil in themselves; but only when they are permitted by ignorance or indifference to rush headlong with unguided force to work evil. So the power of may money be guided into useful channels or may rush in cataracts of woe and death. There is no doubt at all that money can be put to good as well as to bad uses. Wealthy men and women to day are doing some good with the money at their disposal and by large expenditure in the up-keep of hospitals, homes of refuge and other undertakings are helping the sick, the wounded and the poor in greatly alleviating affliction. To possess money is not necessarily to be evil, and to do evil with it. Many have decried wealth as the cause of much sin and sorrow. They teach the accumulation of money produces departure from right and ethical road and they are not incorrect. Most of the immernse fortunes of the world-famed mult-millionaries have sprung from unholy combines, in which ruin has come to many thousands in order that the "Corner" might secure all the plunder. Wealth breeds maggots the undying worms of exorbitant selfish desire ever increasing in size and numbers until they eat out the very soul of true purity and Godlikeness. God is unselfish —love—all multiplying in this restless love. Wealth is selfish demanding, craving, desiring ever more and more unsatiable, never satisfied. Exceptionally, wealth may produce good deeds but even these are selfish—born of despicable pride done for applause ; done publicly for praize! For this and other better reasons, a loving Prevdence has hidden away the diamonds, the jewellery, and the gold, deep in the unsearchable mines and has only revealed a small, modicum to show how little can greatly contaminate, and how sad it would be for the world if every one was rich.

CREOSOTE FOR U. S. A.

His Majesty's consul General at Portland states, says *Chemical Age*, that past years full cargoes of creosote have occasionelly reached that coast from Scotland by tanker direct, and the product has generally been divided between the three creosoting plants on the columbia River, Puget Sound and British Columbia where it is mainly employed in treating lumber for preservative purposes. There are, however, other uses to which the product can be put, and the company believe that a satisfactory trade opening can be established if the right price can be found. They would, therefore, be glad to be placed in touch with the principal dealers in this commodity, in order to be able to secure prices F. O. B. British port. The name and address of the company referred to may be obtained by manufacturers and exporters on application to the Department of Overseas Trade, 35 Old Queen Street, London. The reference No. 14006 F. W. Sc. (2) should be mentioned.

"COMMERCE & INDUSTRIES"

MADRAS, 1st MARCH, 1922

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